

Advance Brands

CASE
SUMMARY

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ADVANCE BRANDS, L.L.C.

Orange City, Iowa
Sioux County

Intern: Tom Bruton
Major: Civil Engineering
School: Iowa State University



The Company

Advance Brands, L.L.C. is a joint venture between Advance Foods of Enid, Oklahoma and the Excel Corporation of Wichita, Kansas. At its production facility in Orange City, the company processes purchased meat into ready-to-eat consumer goods such as chicken nuggets and fajita meat, and then distributes these products to grocery stores nationwide.

Project Background

The internship was focused on researching and implementing ways to reduce the BOD (Biochemical Oxygen Demand) discharge from Advance Brands' wastewater pretreatment facility. The intern also was to investigate solid waste disposal alternatives, develop a utilities tracking system, and update the plant's Storm Water Pollution Prevention Plan and Spill Prevention Control and Countermeasure Plan.

Incentives to Change

The most troublesome environmental aspect at Advance Brands is the high BOD in the plant's wastewater. To improve effluent quality and reduce the treatment, sewer, and compliance costs, the company wishes to minimize the organic loading of the wastewater coming into its pretreatment facility.

The company would also like to reduce the amount of solid waste disposed of in the landfill. However, because no one had recently investigated waste management at the facility, plant employees had little understanding of the origin or disposal method of waste streams.



By researching these problems and then implementing appropriate solutions, the company will minimize its environmental impact, cut operating costs, and establish itself as an environmental leader.

Results

Several potential Pollution Prevention (P2) projects were identified and investigated. Currently, the caustic cleaning chemical used to sanitize the ovens and fryers each night is drained to the

wastewater pretreatment unit in large batches. This large volume of high-pH caustic disrupts the treatment system and the BOD discharge increases rapidly. By installing a clarifier tank on the production floor, the company will be able to reuse the caustic for several consecutive nights. This will reduce usage of the cleaning chemical and the acid used to neutralize it in the wastewater pretreatment unit.



Another opportunity is the installation of a new grease skimmer. This skimmer tank would provide the hydraulic retention time needed for the grease to float to the top of the oven wastewater. Skimming this grease from the surface of the water would then decrease the effluent BOD. Piping the grease to an outside storage tank would allow Advance Brands to sell this material to a rendering company instead of paying for disposal.

Presently, the blow down from the cooling towers is sent to the sanitary sewer and treated like wastewater. By repiping this clean non-process water to the storm sewer, unnecessary hydraulic load on the pretreatment unit could be eliminated and treatment chemicals could be saved.

One other waste reduction option would be to divert the company's inedible breadding and batter waste from landfill disposal to a local composting operation.

Project Summary Table

Waste Reduction Option	Description	Waste Reduced Per Year	Raw Materials Saved Per Year	Annual Cost Savings
Caustic re-use*	Reduce use of sanitizing caustic and wastewater treatment acid by 30%	27,140 gal chemical	27,140 gal chemical	\$56,700
Piping grease to outside tank*	Transfer grease to outside tank and sell to renderer instead of paying for disposal	---	---	\$23,000
Install large skimmer	Larger capacity tank will remove more grease from oven wastewater	150 tons of grease	---	\$20,000
Inedible breadding to compost operation	Transfer batter and breadding waste to local composter instead of paying for disposal	15 tons	---	\$400
Cooling water to storm sewer	Divert non-process cooling water from sanitary to storm sewer to avoid unnecessary treatment costs	---	---	\$5,000

*Indicates project has begun implementation